PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
J. Brian Windsor, *et al.*

Serial No.: unassigned

Filed: Concurrently herewith

For: GENETIC AND EPIGENETIC MANIPULATION OF ABC TRANSPORTERS AND ECTO-PHOSPHATASES FOR THE CONFERENCE OF DRUG RESISTANCE AND FOR THE LOSS OF DRUG RESISTANCE IN BIOLOGICAL SYSTEMS AND METHODS FOR THE DETECTION OF ECTO-PHOSPHATASE INHIBITORS

Prior Group Art Unit: 1649

Prior Examiner: Mehta, A.

Atty. Dkt. No.: TEXG:003USD1

EXPRESS MAIL NO . EL 780053471 US
DATE OF DEPOSIT· January 14, 2002

PRELIMINARY AMENDMENT

Commissioner of Patents
Washington, D.C. 20231

Sir:

Please amend this application as follows:

1.1 IN THE SPECIFICATION

Please amend the specification at page 1 by replacing the paragraph immediately following "SPECIFICATION" with the following:

--The present application is a divisional application of U.S. Patent Application Serial No. 09/261,825, filed March 3, 1999, the entire disclosure of which is specifically incorporated by reference herein without disclaimer. The present invention involves subject matter developed under

NSF Grant Number IBN9603884 and other federal funds, so that the United States Government may have certain rights herein.--

1.2 IN THE CLAIMS

Please delete claims 1-19 and 22-24 without prejudice or disclaimer.

Please amend claims 20 and 21 by entering the following replacement claims:

20. (Amended) A method for decreasing drug resistance in a target bacteria, yeast, plant or mammalian cell comprising introducing to the cell a drug resistance-inhibiting amount of an ecto-phosphatase inhibitory molecule selected from the group consisting of molecules having the Formulae I through XIX:

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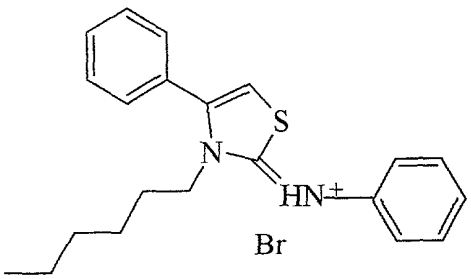

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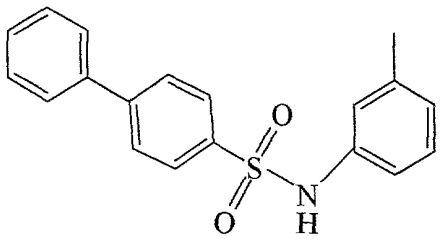

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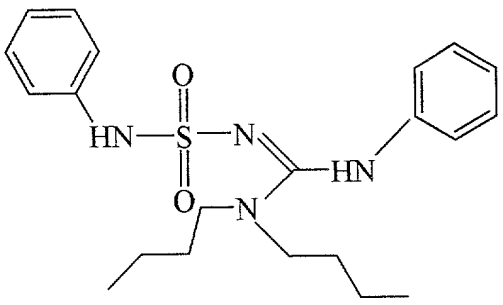

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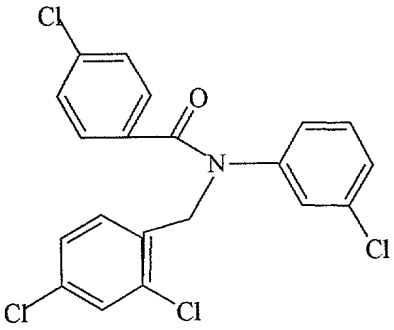

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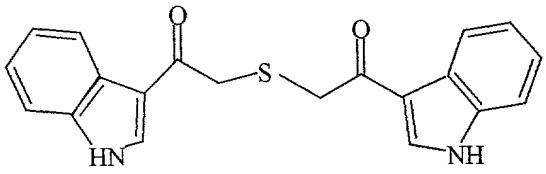

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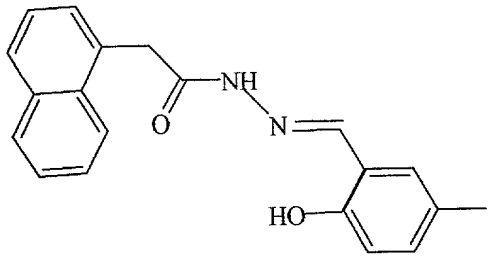

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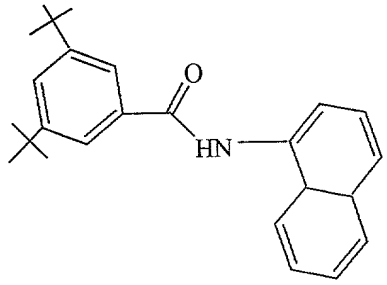

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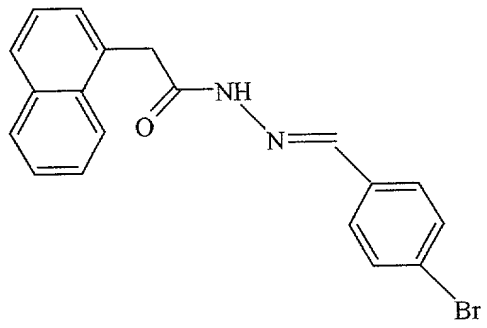

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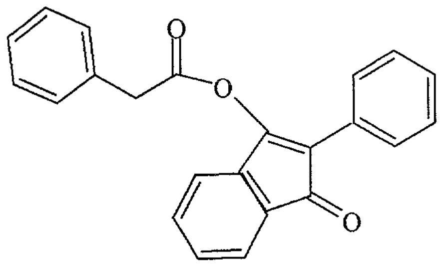

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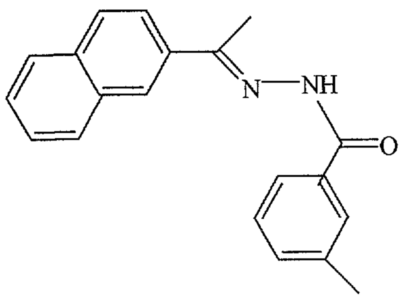

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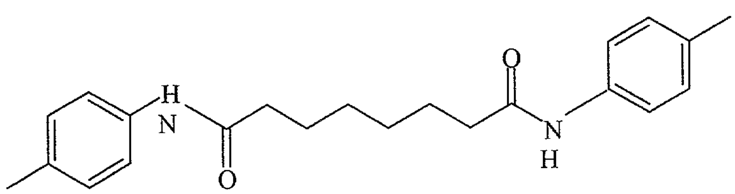

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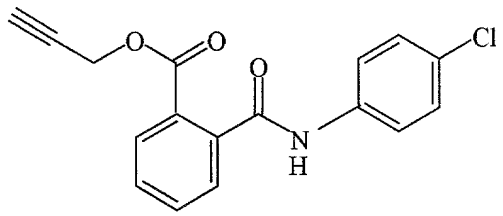

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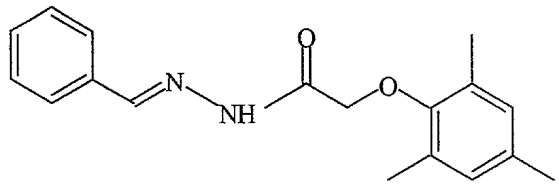

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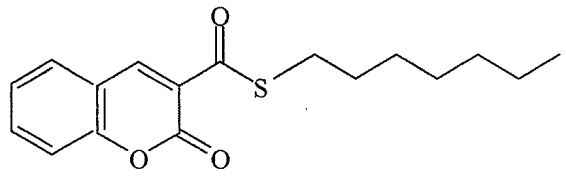

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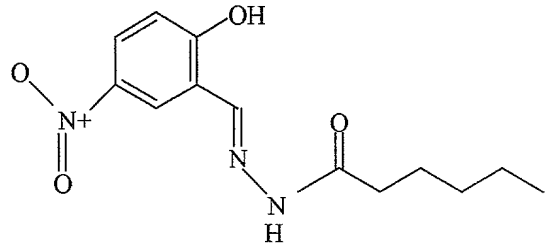

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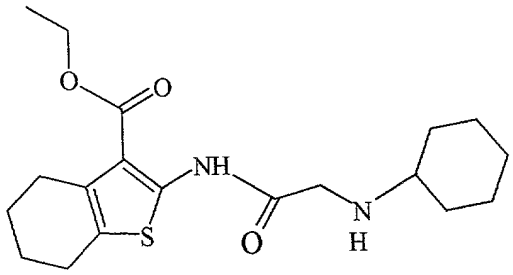

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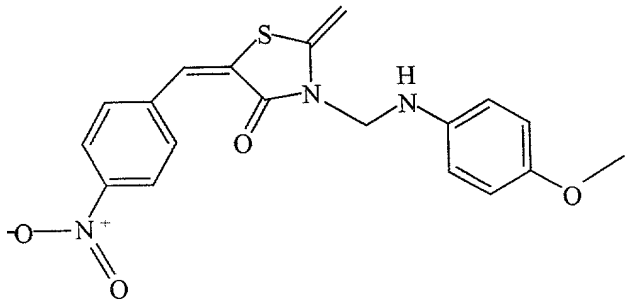

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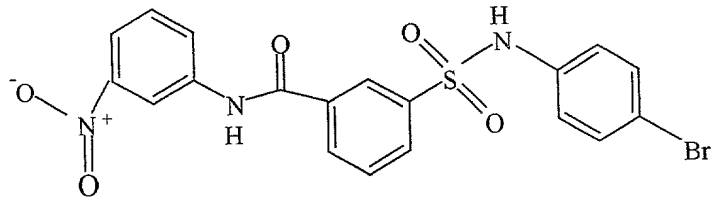

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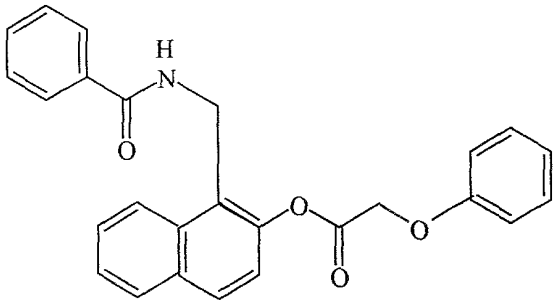

21. (Amended) The method according to claim 20 wherein the mammalian cell is a tumor cell.--

Please add new claims 25-50 as follows:

--25. (New) The method of claim 20, further comprising down-regulating an ABC transporter in said cell.

26. (New) The method of claim 20, wherein said ecto-phosphatase is selected from the group consisting of *Pisum sativum* apyrase and *Homo sapiens* apyrase.

27. (New) The method of claim 25, wherein the ABC transporter is selected from the group consisting of *Arabidopsis thaliana* AtPGP-1, *Homo sapiens* Pgp, *Homo sapiens* MDR-ß, *Saccharomyces cerevisiae* STS1, *Saccharomyces cerevisiae* Pdr5p, *Aspergillus fumigatus* Afu-MDR1 and *Lactococcus lactis* LmrA.

28. (New) The method of claim 20, wherein the cell is a bacteria cell.

29. (New) The method of claim 20, wherein the cell is a yeast cell.

30. (New) The method of claim 20, wherein the cell is a plant cell.

31. (New) The method of claim 20, wherein the cell is a mammalian cell.

32. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula I.

33. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula II.

34. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula III.

35. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula IV.

36. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula V.

37. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VI.

38. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VII.

39. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VIII.

40. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula IX.

41. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula X.

42. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XI.

43. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XII.

44. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIII.

45. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIV.

46. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XV.

47. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVI.

48. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVII.

49. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVIII.

50. (New) The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIX.--

2.0 REMARKS

The specification has been amended to insert information regarding the parent application of the instant divisional application. Claims 1-24 were filed with the application. Claims 1-19 and 22-24 have been canceled herein without prejudice or disclaimer as drawn to subject matter not elected in the instant application. Claims 20 and 21 have been amended herein. A marked-up copy of the specification and claim amendments is attached herewith as Appendix A. New claims 25-50 have been added herein. Support for the new claims can be found in the originally-filed claims.

The instant paper is submitted pursuant to the election to prosecute herein the Group VI claims identified in the Restriction Requirement mailed in parent case Serial No. 09/261,825 on February 16, 2000, drawn to a method for decreasing drug resistance in a bacterial, yeast, plant, or mammalian cell, comprising introduction of an ecto-phosphatase inhibitor, classified in class 435, subclass 7.23, for example. Claims 21-22 and 25-50 are now pending in the case and presented for consideration. A clean copy of the pending claims following entry of the instant amendment is attached as Appendix B.

3.0 CONCLUSION

In conclusion, Applicant submits that, in light of the foregoing remarks, the present case is in condition for allowance and such favorable action is respectfully requested. If however, some unanswered questions remain in the mind of the Examiner, or if the Examiner would be available to discuss the merits of this case, and assist in facilitating its speedy allowance, the Examiner is invited to contact the Applicant's undersigned representative at (512)536-3085 with any questions, comments or suggestions relating to the referenced patent application.

Consideration of the foregoing remarks is earnestly solicited by the Applicant.

Respectfully submitted,

Robert E. Hanson
Reg. No. 42,628
Attorney for Applicants

FULBRIGHT & JAWORSKI, L.L.P.
600 Congress Ave., Ste. 1900
Austin, Texas 78701
(512) 474-5201

Date: January 14, 2002

APPENDIX A: VERSION OF CLAIM AND SPECIFICATION AMENDMENTS MARKED TO SHOW CHANGES

Please amend the specification at page 1 by replacing the paragraph immediately following "SPECIFICATION" with the following:

--The present application is a divisional application of U.S. Patent Application Serial No. 09/261,825, filed March 3, 1999, the entire disclosure of which is specifically incorporated by reference herein without disclaimer. [This application is a continuation in part.] The present invention involves subject matter developed under NSF Grant Number[ed] IBN9603884 and other federal funds, so that the United States Government may have certain rights herein.--

20. (Amended) A method for decreasing drug resistance in a target bacteria, yeast, plant or mammalian cell comprising introducing to the cell[s] a drug resistance-inhibiting amount of an ecto-phosphatase inhibitory molecule selected from the group consisting of molecules having the Formulae I through XIX:

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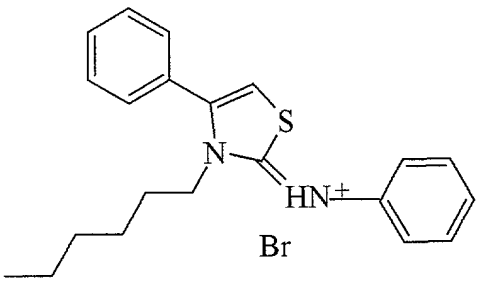

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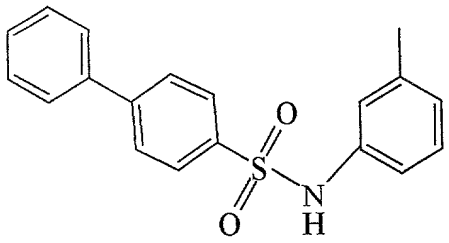

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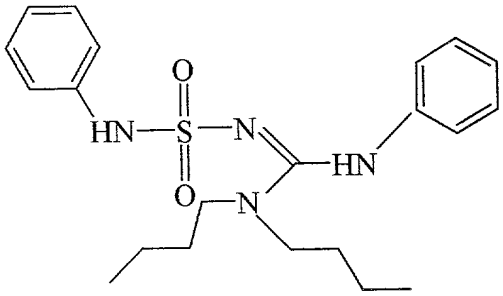

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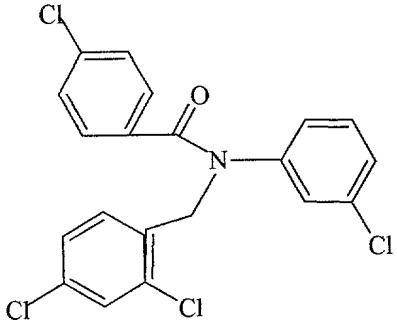

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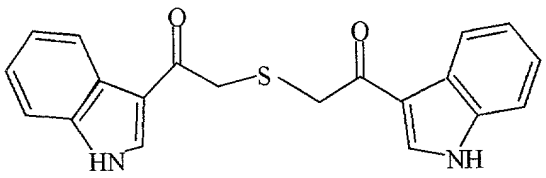

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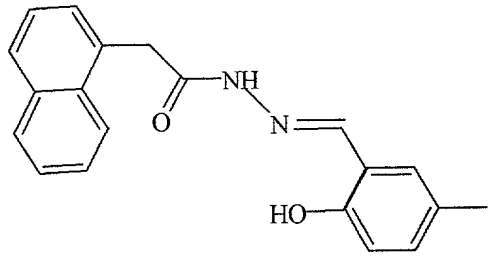

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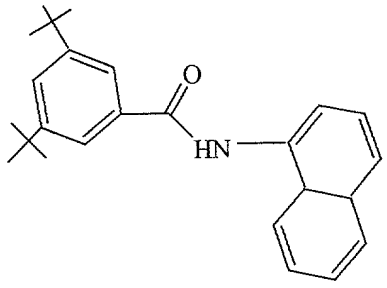

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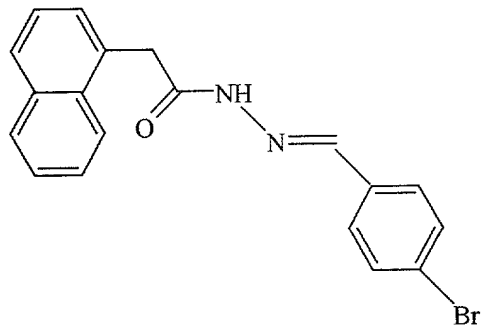

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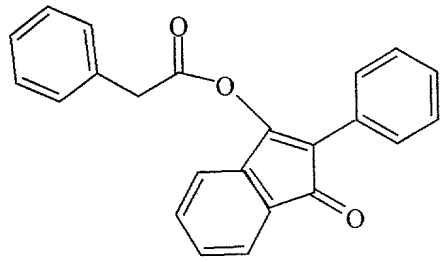

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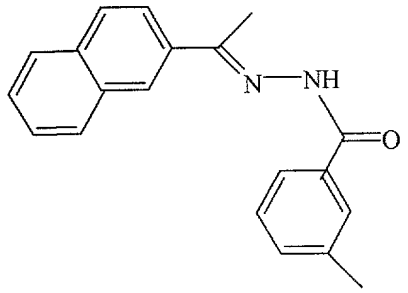

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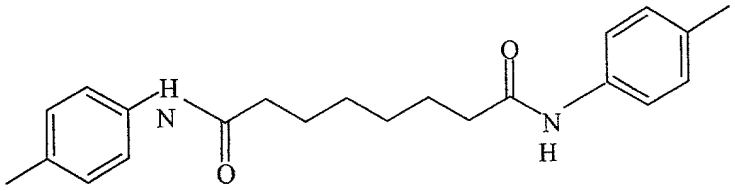

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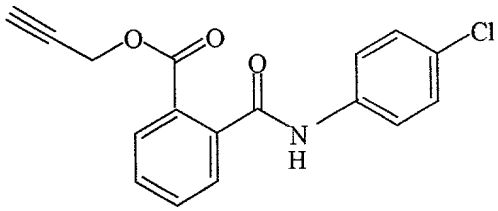

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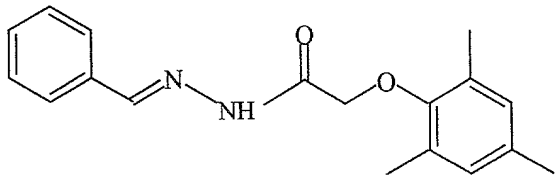

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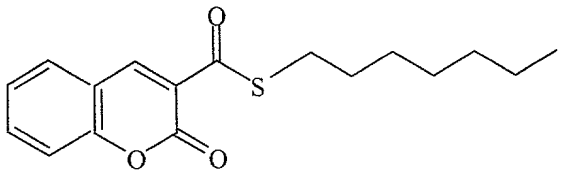

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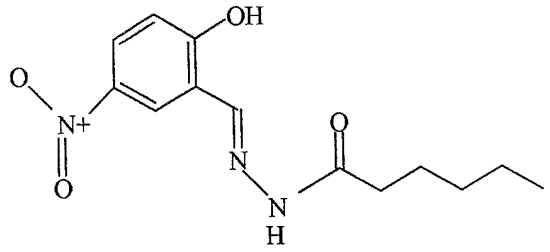

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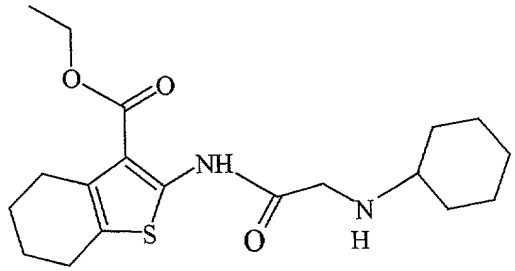

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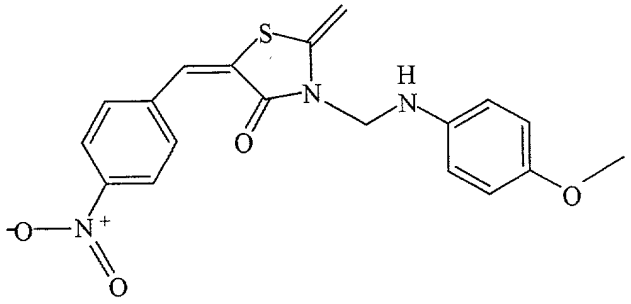

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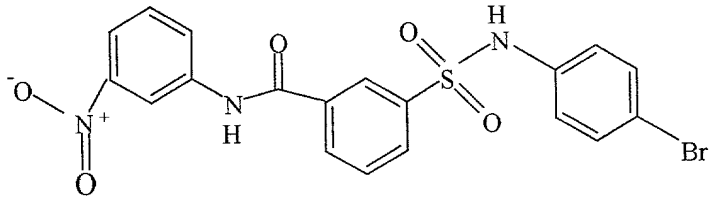

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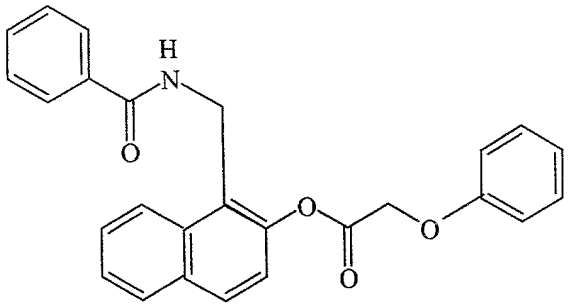
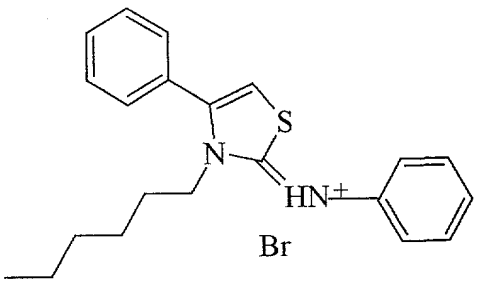


21. (Amended) The method according to claim 20 wherein the mammalian cell[s are] is a tumor cell[s].

APPENDIX B: CLEAN COPY OF PENDING CLAIMS FOLLOWING ENTRY OF PRELIMINARY AMENDMENT

20. A method for decreasing drug resistance in a target bacteria, yeast, plant or mammalian cell comprising introducing to the cell a drug resistance-inhibiting amount of an ecto-phosphatase inhibitory molecule selected from the group consisting of molecules having the Formulae I through XIX:

I



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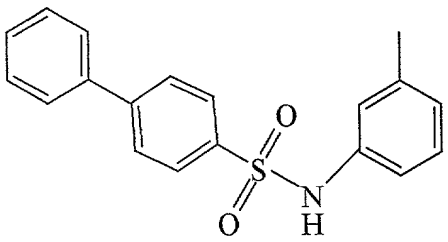

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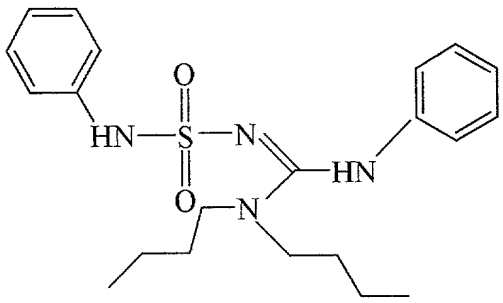

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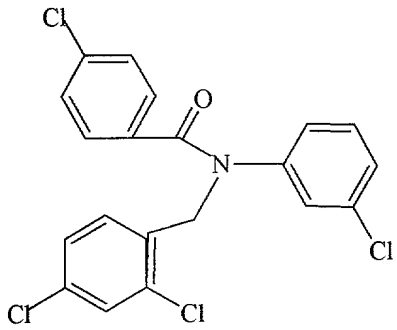

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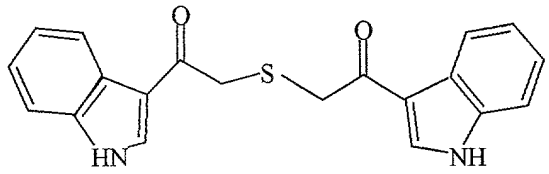

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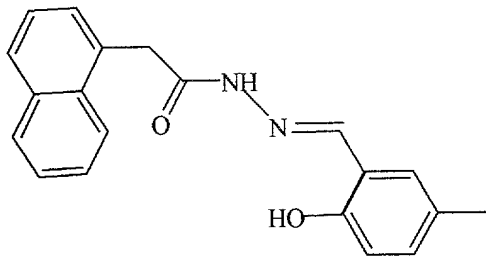

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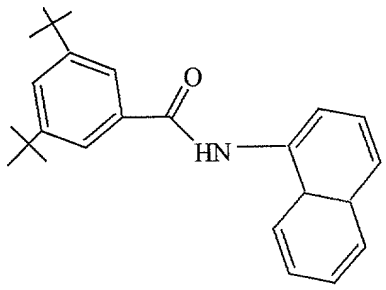

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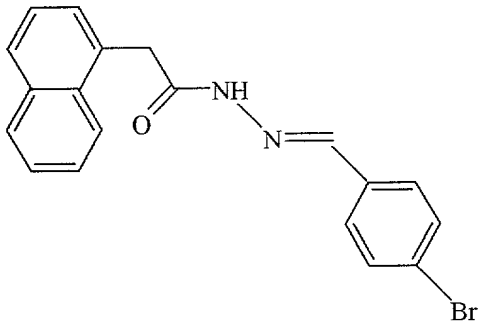

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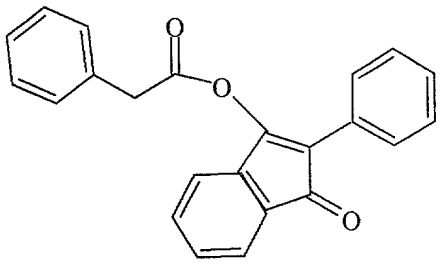

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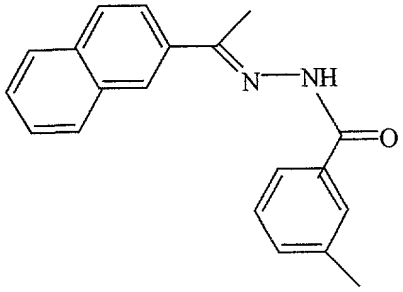

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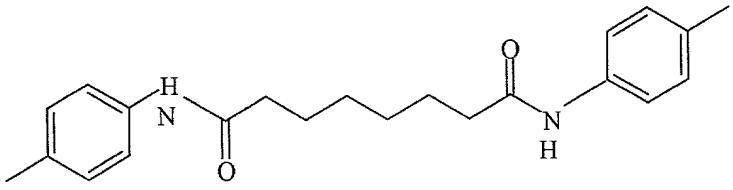

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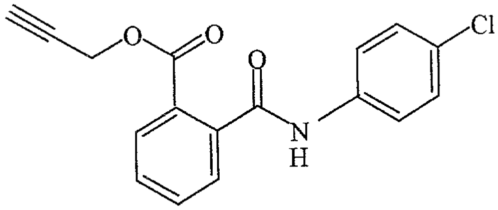

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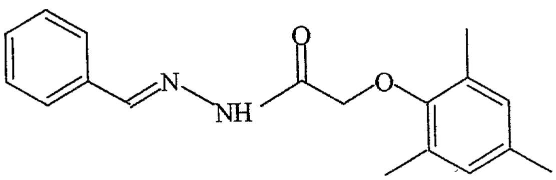

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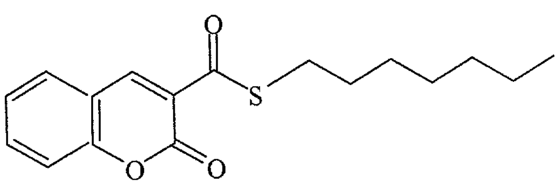

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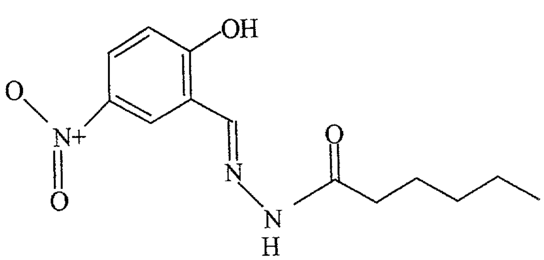

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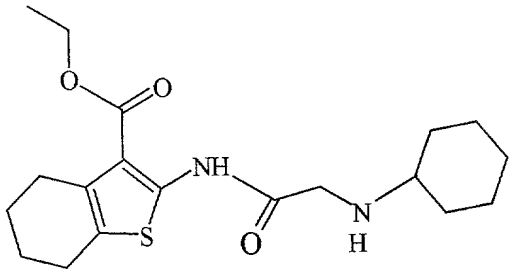

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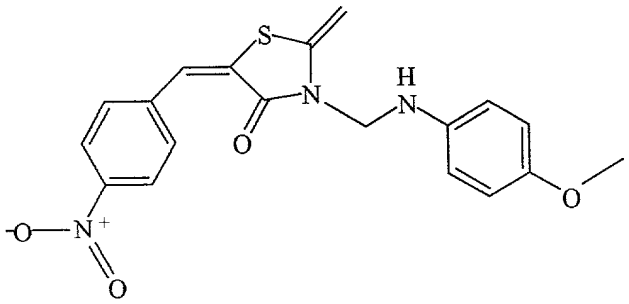

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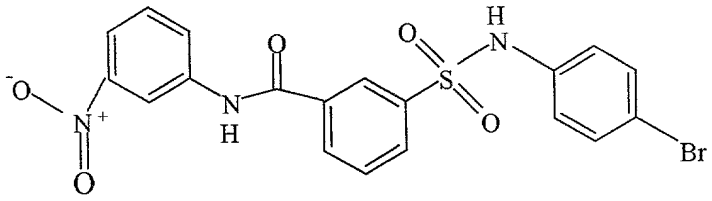

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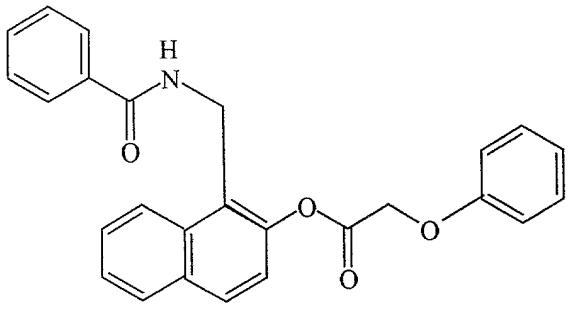

21. The method according to claim 20 wherein the mammalian cell is a tumor cell.

25. The method of claim 20, further comprising down-regulating an ABC transporter in said cell.

26. The method of claim 20, wherein said ecto-phosphatase is selected from the group consisting of *Pisum sativum* apyrase and *Homo sapiens* apyrase.

27. The method of claim 25, wherein the ABC transporter is selected from the group consisting of *Arabidopsis thaliana* AtPGP-1, *Homo sapiens* Pgp, *Homo sapiens* MDR-ß, *Saccharomyces cerevisiae* STS1, *Saccharomyces cerevisiae* Pdr5p, *Aspergillus fumigatus* Afu-MDR1 and *Lactococcus lactis* LmrA.

28. The method of claim 20, wherein the cell is a bacteria cell.

29. The method of claim 20, wherein the cell is a yeast cell.

30. The method of claim 20, wherein the cell is a plant cell.

31. The method of claim 20, wherein the cell is a mammalian cell.

32. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula I.

33. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula II.

34. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula III.

35. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula IV.

36. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula V.

37. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VI.

38. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VII.

39. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula VIII.

40. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula IX.

41. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula X.

42. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XI.

43. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XII.

44. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIII.

45. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIV.

46. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XV.

47. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVI.

48. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVII.

49. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XVIII.

50. The method of claim 20, wherein the ecto-phosphatase inhibitory molecule is a molecule having Formula XIX.